

ABSTRACT

[0055] Protocols, data structures, algorithms, architectures, and methodologies are described for securing, compressing, and transmitting data in networks. The invention includes data structures for transmission in networks referred to as "network components." Network components may form nested structures, and may be processed recursively. Features supported by network components, which perform multiple functions including (1) reducing the data exchanged in networks by replacing repeating information with identification numbers and (2) securing data sent in networks at a detailed level of granularity. Network components also allow the use of link-state protocols for supporting large Network Information Bases, such as BGP. Formats of network components may be constructed and/or altered in real-time, or determined from protocol definitions by automated techniques.